



SEQUENCE LISTING

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LASKO, DANA

<120> CLOSTRIDIUM BOTULINUM C3 EXOTRANSFERASE COMPOSITIONS AND METHODS
FOR TREATING TUMOUR SPREADING

<130> 1912-0330PUS1

<140> US 10/573,658
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<150> PCT/CA04/01763
<151> 2004-09-29

<150> US 10/902,879
<151> 2004-08-02

<150> US 60/506,162
<151> 2003-09-29

<160> 59

<170> PatentIn version 3.1

<210> 1
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide used to remove the stop codon from ADP-ribosyl
transferase C3 (Clostridium botulinum) cDNA.

<400> 1
gaattcttta ggattgatag ctgtgcc 27

<210> 2
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide used to remove the stop codon from ADP-ribosyl
transferase C3 (Clostridium botulinum) cDNA.

<400> 2
ggtggcgacc atcctcaaaa a 21

<210> 3
<211> 888
<212> DNA
<213> Artificial Sequence

<220>

<223> Sequence of C3APL: includes ADP-ribosyl transferase C3
(Clostridium botulinum) and Antennapedia sequence.

<220>

<221> CDS

<222> (1)..(888)

<400> 3

gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat	48
Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn	
1 5 10 15	

caa aag gct tat tca aat act tac cag gag ttt act aat att gat caa	96
Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln	
20 25 30	

gca aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa	144
Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys	
35 40 45	

tca gaa aaa gaa gct ata gta tca tat act aaa agc gct agt gaa ata	192
Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile	
50 55 60	

aat gga aag cta aga caa aat aag gga gtt atc aat gga ttt cct tca	240
Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser	
65 70 75 80	

aat tta ata aaa caa gtt gaa ctt tta gat aaa tct ttt aat aaa atg	288
Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met	
85 90 95	

aag acc cct gaa aat att atg tta ttt aga ggc gac gac cct gct tat	336
Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr	
100 105 110	

tta gga aca gaa ttt caa aac act ctt ctt aat tca aat ggt aca att	384
Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile	
115 120 125	

aat aaa acg gct ttt gaa aag gct aaa gct aag ttt tta aat aaa gat	432
Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp	
130 135 140	

aga ctt gaa tat gga tat att agt act tca tta atg aat gtc tct caa	480
Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln	
145 150 155 160	

ttt gca gga aga cca att att aca caa ttt aaa gta gca aaa ggc tca	528
Phe Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser	
165 170 175	

aag gca gga tat att gac cct att agt gct ttt cag gga caa ctt gaa	576
Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu	
180 185 190	

atg ttg ctt cct aga cat agt act tat cat ata gac gat atg aga ttg	624
Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu	
195 200 205	
tct tct gat ggt aaa caa ata ata att aca gca aca atg atg ggc aca	672
Ser Ser Asp Gly Lys Gln Ile Ile Thr Ala Thr Met Met Gly Thr	
210 215 220	
gct atc aat cct aaa gaa ttc gtg atg gaa tcc cgc aaa cgc gca agg	720
Ala Ile Asn Pro Lys Glu Phe Val Met Glu Ser Arg Lys Arg Ala Arg	
225 230 235 240	
cag aca tac acc cgg tac cag act cta gag cta gag aag gag ttt cac	768
Gln Thr Tyr Thr Arg Tyr Gln Thr Leu Glu Leu Glu Lys Glu Phe His	
245 250 255	
ttc aat cgc tac ttg acc cgt cgg cga agg atc gag atc gcc cac gcc	816
Phe Asn Arg Tyr Leu Thr Arg Arg Arg Arg Ile Glu Ile Ala His Ala	
260 265 270	
ctg tgc ctc acg gag cgc cag ata aag att tgg ttc cag aat cgg cgc	864
Leu Cys Leu Thr Glu Arg Gln Ile Lys Ile Trp Phe Gln Asn Arg Arg	
275 280 285	
atg aag tgg aag aag gag aac tga	888
Met Lys Trp Lys Lys Glu Asn	
290 295	

<210> 4
 <211> 295
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Sequence of C3APLT: includes ADP-ribosyl transferase C3
 (Clostridium botulinum) and Antennapedia sequence.

<400> 4

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn
1 5 10 15

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
20 25 30

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys
35 40 45

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
50 55 60

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser
65 70 75 80

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met
85 90 95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr
100 105 110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile
115 120 125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp
130 135 140

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
145 150 155 160

Phe Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser
165 170 175

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu
180 185 190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
195 200 205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
210 215 220

Ala Ile Asn Pro Lys Glu Phe Val Met Glu Ser Arg Lys Arg Ala Arg
225 230 235 240

Gln Thr Tyr Thr Arg Tyr Gln Thr Leu Glu Leu Glu Lys Glu Phe His
245 250 255

Phe Asn Arg Tyr Leu Thr Arg Arg Arg Arg Ile Glu Ile Ala His Ala
260 265 270

Leu Cys Leu Thr Glu Arg Gln Ile Lys Ile Trp Phe Gln Asn Arg Arg
275 280 285

Met Lys Trp Lys Lys Glu Asn

290

295

<210> 5
 <211> 774
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Sequence of C3APS: Includes ADP-ribosyl transferase C3
 (Clostridium botulinum) and Antennapedia sequence.

<220>

<221> CDS

<222> (1)..(774)

<400> 5

gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat 48
 Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn
 1 5 10 15

caa aag gct tat tca aat act tac cag gag ttt act aat att gat caa 96
 Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
 20 25 30

gca aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa 144
 Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys
 35 40 45

tca gaa aaa gaa gct ata gta tca tat act aaa agc gct agt gaa ata 192
 Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
 50 55 60

aat gga aag cta aga caa aat aag gga gtt atc aat gga ttt cct tca 240
 Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser
 65 70 75 80

aat tta ata aaa caa gtt gaa ctt tta gat aaa tct ttt aat aaa atg 288
 Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met
 85 90 95

aag acc cct gaa aat att atg tta ttt aga ggc gac gac cct gct tat 336
 Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr
 100 105 110

tta gga aca gaa ttt caa aac act ctt ctt aat tca aat ggt aca att 384
 Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile
 115 120 125

aat aaa acg gct ttt gaa aag gct aaa gct aag ttt tta aat aaa gat 432
 Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp
 130 135 140

aga ctt gaa tat gga tat att agt act tca tta atg aat gtc tct caa 480
 Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
 145 150 155 160

ttt gca gga aga cca att att aca caa ttt aaa gta gca aaa ggc tca	528
Phe Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser	
165 170 175	
aag gca gga tat att gac cct att agt gct ttt cag gga caa ctt gaa	576
Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu	
180 185 190	
atg ttg ctt cct aga cat agt act tat cat ata gac gat atg aga ttg	624
Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu	
195 200 205	
tct tct gat ggt aaa caa ata ata att aca gca aca atg atg ggc aca	672
Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr	
210 215 220	
gct atc aat cct aaa gaa ttc cgc cag atc aag att tgg ttc cag aat	720
Ala Ile Asn Pro Lys Glu Phe Arg Gln Ile Lys Ile Trp Phe Gln Asn	
225 230 235 240	
cgt cgc atg aag tgg aag aag gtc gac tcg agc ggc cgc atc gtg act	768
Arg Arg Met Lys Trp Lys Lys Val Asp Ser Ser Gly Arg Ile Val Thr	
245 250 255	
gac tga	774
Asp	

<210> 6
 <211> 257
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Sequence of C3APS: Includes ADP-ribosyl transferase C3
 (Clostridium botulinum) and Antennapedia sequence.

<400> 6

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn	
1 5 10 15	
Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln	
20 25 30	
Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys	
35 40 45	
Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile	
50 55 60	

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser
65 70 75 80

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met
85 90 95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr
100 105 110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile
115 120 125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp
130 135 140

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
145 150 155 160

Phe Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser
165 170 175

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu
180 185 190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
195 200 205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
210 215 220

Ala Ile Asn Pro Lys Glu Phe Arg Gln Ile Lys Ile Trp Phe Gln Asn
225 230 235 240

Arg Arg Met Lys Trp Lys Lys Val Asp Ser Ser Gly Arg Ile Val Thr
245 250 255

Asp

<210> 7
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
 <223> Oligonucleotide used in the amplification of Antennapedia
 sequence

<400> 7
 gaatcccgca aacgcgcaag gcag 24

<210> 8
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Oligonucleotide used in the amplification of Antennapedia
 sequence

<400> 8
 tcagttctcc ttcttccact tcatgcg 27

<210> 9
 <211> 54
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Oligonucleotide used in the cloning of sequences from
 Antennapedia

<400> 9
 aattccgccga gatcaagatt tggttccaga atcgtcgcgcat gaagtggaag aagg 54

<210> 10
 <211> 54
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Oligonucleotide used in the cloning of sequences from
 Antennapedia

<400> 10
 ggcggtctag ttctaaacca agctcttagc agcgtagttc accttcttcc agct 54

<210> 11
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Oligonucleotide used in the amplification of a sequence
 corresponding to amino acid 27-72 of HIV-1 Tat

<400> 11
 gaatccaagc atccaggaag tcagcc 26

<210> 12
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Oligonucleotide used in the amplification of a sequence
 corresponding to amino acid 27-72 of HIV-1 Tat

<400> 12
 accagccacc accttctgat a 21

<210> 13
 <211> 876
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Sequence of C3-TL: Includes ADP-ribosyl transferase C3
 (Clostridium botulinum) and HIV-1 Tat sequence.

<220>
 <221> CDS
 <222> (1)..(876)

<400> 13
 gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat 48
 Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn
 1 5 10 15

caa aag gct tat tca aat act tac cag gag ttt act aat att gat caa 96
 Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
 20 25 30

gca aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa 144
 Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys
 35 40 45

tca gaa aaa gaa gct ata gta tca tat act aaa agc gct agt gaa ata 192
 Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
 50 55 60

aat gga aag cta aga caa aat aag gga gtt atc aat gga ttt cct tca 240
 Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser
 65 70 75 80

aat tta ata aaa caa gtt gaa ctt tta gat aaa tct ttt aat aaa atg 288
 Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met
 85 90 95

aag acc cct gaa aat att atg tta ttt aga ggc gac gac cct gct tat 336

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr	
100 105 110	
tta gga aca gaa ttt caa aac act ctt ctt aat tca aat ggt aca att	384
Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile	
115 120 125	
aat aaa acg gct ttt gaa aag gct aaa gct aag ttt tta aat aaa gat	432
Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp	
130 135 140	
aga ctt gaa tat gga tat att agt act tca tta atg aat gtc tct caa	480
Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln	
145 150 155 160	
ttt gca gga aga cca att att aca caa ttt aaa gta gca aaa ggc tca	528
Phe Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser	
165 170 175	
aag gca gga tat att gac cct att agt gct ttt cag gga caa ctt gaa	576
Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu	
180 185 190	
atg ttg ctt cct aga cat agt act tat cat ata gac gat atg aga ttg	624
Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu	
195 200 205	
tct tct gat ggt aaa caa ata ata att aca gca aca atg atg ggc aca	672
Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr	
210 215 220	
gct atc aat cct aaa gaa ttc aag cat cca gga agt cag cct aaa act	720
Ala Ile Asn Pro Lys Glu Phe Lys His Pro Gly Ser Gln Pro Lys Thr	
225 230 235 240	
gct tgt acc aat tgc tat tgt aaa aag tgt tgc ttt cat tgc caa gtt	768
Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe His Cys Gln Val	
245 250 255	
tgt ttc ata aca aaa gcc tta ggc atc tcc tat ggc agg aag cgg aga	816
Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly Arg Lys Arg Arg	
260 265 270	
cag cga cga aga gct cat cag aac agt cag act cat caa gct tct cta	864
Gln Arg Arg Arg Ala His Gln Asn Ser Gln Thr His Gln Ala Ser Leu	
275 280 285	
tca aag cag taa	876
Ser Lys Gln	
290	
<210> 14	
<211> 291	
<212> PRT	
<213> Artificial Sequence	

<220>

<223> Sequence of C3-TL: Includes ADP-ribosyl transferase C3
(Clostridium botulinum) and HIV-1 Tat sequence.

<400> 14

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn
1 5 10 15

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
20 25 30

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys
35 40 45

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
50 55 60

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser
65 70 75 80

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met
85 90 95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr
100 105 110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile
115 120 125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp
130 135 140

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
145 150 155 160

Phe Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser
165 170 175

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu
180 185 190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
195 200 205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
 210 215 220

Ala Ile Asn Pro Lys Glu Phe Lys His Pro Gly Ser Gln Pro Lys Thr
 225 230 235 240

Ala Cys Thr Asn Cys Tyr Cys Lys Lys Cys Cys Phe His Cys Gln Val
 245 250 255

Cys Phe Ile Thr Lys Ala Leu Gly Ile Ser Tyr Gly Arg Lys Arg Arg
 260 265 270

Gln Arg Arg Arg Ala His Gln Asn Ser Gln Thr His Gln Ala Ser Leu
 275 280 285

Ser Lys Gln
 290

<210> 15
 <211> 39
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Oligonucleotide used in the cloning of sequences from HIV-1 Tat

<400> 15
 aattctatgg tcgtaaaaaa cgtcgtcaac gtcgtcgtg 39

<210> 16
 <211> 39
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Oligonucleotide used in the cloning of sequences from HIV-1 Tat

<400> 16
 gataccagca ttttttgcag cagttgcagc agcacagct 39

<210> 17
 <211> 756
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Sequence of C3-TS: Includes ADP-ribosyl transferase C3

(Clostridium botulinum) and HIV-1 Tat sequence.

<220>

<221> CDS

<222> (1)..(756)

<400> 17

gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat	48
Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn	
1 5 10 15	

caa aag gct tat tca aat act tac cag gag ttt act aat att gat caa	96
Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln	
20 25 30	

gca aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa	144
Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys	
35 40 45	

tca gaa aaa gaa gct ata gta tca tat act aaa agc gct agt gaa ata	192
Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile	
50 55 60	

aat gga aag cta aga caa aat aag gga gtt atc aat gga ttt cct tca	240
Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser	
65 70 75 80	

aat tta ata aaa caa gtt gaa ctt tta gat aaa tct ttt aat aaa atg	288
Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met	
85 90 95	

aag acc cct gaa aat att atg tta ttt aga ggc gac gac cct gct tat	336
Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr	
100 105 110	

tta gga aca gaa ttt caa aac act ctt ctt aat tca aat ggt aca att	384
Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile	
115 120 125	

aat aaa acg gct ttt gaa aag gct aaa gct aag ttt tta aat aaa gat	432
Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp	
130 135 140	

aga ctt gaa tat gga tat att agt act tca tta atg aat gtc tct caa	480
Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln	
145 150 155 160	

ttt gca gga aga cca att att aca caa ttt aaa gta gca aaa ggc tca	528
Phe Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser	
165 170 175	

aag gca gga tat att gac cct att agt gct ttt cag gga caa ctt gaa	576
Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu	
180 185 190	

atg ttg ctt cct aga cat agt act tat cat ata gac gat atg aga ttg	624
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Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
195 200 205

tct tct gat ggt aaa caa ata ata att aca gca aca atg atg ggc aca 672
Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
210 215 220

gct atc aat cct aaa gaa ttc tat ggt gct aaa aaa cgt cgt caa cgt 720
Ala Ile Asn Pro Lys Glu Phe Tyr Gly Ala Lys Lys Arg Arg Gln Arg
225 230 235 240

cgt cgt gtc gac tgc agc ggc ccg cat cgt gac tga 756
Arg Arg Val Asp Ser Ser Gly Pro His Arg Asp
245 250

<210> 18
<211> 251
<212> PRT
<213> Artificial Sequence

<220>
<223> Sequence of C3-TS: Includes ADP-ribosyl transferase C3
(Clostridium botulinum) and HIV-1 Tat sequence.

<400> 18

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn
1 5 10 15

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
20 25 30

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys
35 40 45

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
50 55 60

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser
65 70 75 80

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met
85 90 95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr
100 105 110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile
115 120 125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp
 130 135 140

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
 145 150 155 160

Phe Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser
 165 170 175

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu
 180 185 190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
 195 200 205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
 210 215 220

Ala Ile Asn Pro Lys Glu Phe Tyr Gly Ala Lys Lys Arg Arg Gln Arg
 225 230 235 240

Arg Arg Val Asp Ser Ser Gly Pro His Arg Asp
 245 250

<210> 19
 <211> 1413
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Includes GST sequences, ADP-ribosyl transferase C3
 (C. botulinum) sequence and a random basic amino acid sequence.

<220>
 <221> CDS
 <222> (1)..(1413)

<400> 19
 atg tcc cct ata cta ggt tat tgg aaa att aag ggc ctt gtg caa ccc 48
 Met Ser Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro
 1 5 10 15

act cga ctt ctt ttg gaa tat ctt gaa gaa aaa tat gaa gag cat ttg 96
 Thr Arg Leu Leu Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu
 20 25 30

tat gag cgc gat gaa ggt gat aaa tgg cga aac aaa aag ttt gaa ttg	144
Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys Lys Phe Glu Leu	
35 40 45	
ggt ttg gag ttt ccc aat ctt cct tat tat att gat ggt gat gtt aaa	192
Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp Gly Asp Val Lys	
50 55 60	
tta aca cag tct atg gcc atc ata cgt tat ata gct gac aag cac aac	240
Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala Asp Lys His Asn	
65 70 75 80	
atg ttg ggt ggt tgt cca aaa gag cgt gca gag att tca atg ctt gaa	288
Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile Ser Met Leu Glu	
85 90 95	
gga gcg gtt ttg gat att aga tac ggt gtt tcg aga att gca tat agt	336
Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg Ile Ala Tyr Ser	
100 105 110	
aaa gac ttt gaa act ctc aaa gtt gat ttt ctt agc aag cta cct gaa	384
Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser Lys Leu Pro Glu	
115 120 125	
atg ctg aaa atg ttc gaa gat cgt tta tgt cat aaa aca tat tta aat	432
Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys Thr Tyr Leu Asn	
130 135 140	
ggt gat cat gta acc cat cct gac ttc atg ttg tat gac gct ctt gat	480
Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr Asp Ala Leu Asp	
145 150 155 160	
ggt gtt tta tac atg gac cca atg tgc ctg gat gcg ttc cca aaa tta	528
Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala Phe Pro Lys Leu	
165 170 175	
ggt tgt ttt aaa aaa cgt att gaa gct atc cca caa att gat aag tac	576
Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln Ile Asp Lys Tyr	
180 185 190	
ttg aaa tcc agc aag tat ata gca tgg cct ttg cag ggc tgg caa gcc	624
Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln Gly Trp Gln Ala	
195 200 205	
acg ttt ggt ggt ggc gac cat cct cca aaa tcg gat ctg gtt ccg cgt	672
Thr Phe Gly Gly Gly Asp His Pro Pro Lys Ser Asp Leu Val Pro Arg	
210 215 220	
gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat	720
Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn	
225 230 235 240	
caa aag gct tat tca aat act tac cag gag ttt act aat att gat caa	768
Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln	
245 250 255	
gca aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa	816

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys	
260 265 270	
tca gaa aaa gaa gct ata gta tca tat act aaa agc gct agt gaa ata	864
Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile	
275 280 285	
aat gga aag cta aga caa aat aag gga gtt atc aat gga ttt cct tca	912
Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser	
290 295 300	
aat tta ata aaa caa gtt gaa ctt tta gat aaa tct ttt aat aaa atg	960
Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met	
305 310 315 320	
aag acc cct gaa aat att atg tta ttt aga ggc gac gac cct gct tat	1008
Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr	
325 330 335	
tta gga aca gaa ttt caa aac act ctt ctt aat tca aat ggt aca att	1056
Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile	
340 345 350	
aat aaa acg gct ttt gaa aag gct aaa gct aag ttt tta aat aaa gat	1104
Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp	
355 360 365	
aga ctt gaa tat gga tat att agt act tca tta atg aat gtt tct caa	1152
Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln	
370 375 380	
ttt gca gga aga cca att att aca aaa ttt aaa gta gca aaa ggc tca	1200
Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser	
385 390 395 400	
aag gca gga tat att gac cct att agt gct ttt cag gga caa ctt gaa	1248
Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu	
405 410 415	
atg ttg ctt cct aga cat agt act tat cat ata gac gat atg aga ttg	1296
Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu	
420 425 430	
tct tct gat ggt aaa caa ata ata att aca gca aca atg atg ggc aca	1344
Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr	
435 440 445	
gct atc aat cct aaa gaa ttc aga agg aaa caa aga aga aaa aga aga	1392
Ala Ile Asn Pro Lys Glu Phe Arg Arg Lys Gln Arg Arg Lys Arg Arg	
450 455 460	
ctg cag gcg gcc gca tcg tga	1413
Leu Gln Ala Ala Ala Ser	
465 470	

<210> 20

<211> 470
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Includes GST sequences, ADP-ribosyl transferase C3
 (C. botulinum) sequence and a random basic amino acid
 sequence

<400> 20

Met Ser Pro Ile Leu Gly Tyr Trp Lys Ile Lys Gly Leu Val Gln Pro
 1 5 10 15

Thr Arg Leu Leu Leu Glu Tyr Leu Glu Glu Lys Tyr Glu Glu His Leu
 20 25 30

Tyr Glu Arg Asp Glu Gly Asp Lys Trp Arg Asn Lys Lys Phe Glu Leu
 35 40 45

Gly Leu Glu Phe Pro Asn Leu Pro Tyr Tyr Ile Asp Gly Asp Val Lys
 50 55 60

Leu Thr Gln Ser Met Ala Ile Ile Arg Tyr Ile Ala Asp Lys His Asn
 65 70 75 80

Met Leu Gly Gly Cys Pro Lys Glu Arg Ala Glu Ile Ser Met Leu Glu
 85 90 95

Gly Ala Val Leu Asp Ile Arg Tyr Gly Val Ser Arg Ile Ala Tyr Ser
 100 105 110

Lys Asp Phe Glu Thr Leu Lys Val Asp Phe Leu Ser Lys Leu Pro Glu
 115 120 125

Met Leu Lys Met Phe Glu Asp Arg Leu Cys His Lys Thr Tyr Leu Asn
 130 135 140

Gly Asp His Val Thr His Pro Asp Phe Met Leu Tyr Asp Ala Leu Asp
 145 150 155 160

Val Val Leu Tyr Met Asp Pro Met Cys Leu Asp Ala Phe Pro Lys Leu
 165 170 175

Val Cys Phe Lys Lys Arg Ile Glu Ala Ile Pro Gln Ile Asp Lys Tyr
 180 185 190

Leu Lys Ser Ser Lys Tyr Ile Ala Trp Pro Leu Gln Gly Trp Gln Ala
 195 200 205

Thr Phe Gly Gly Gly Asp His Pro Pro Lys Ser Asp Leu Val Pro Arg
 210 215 220

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn
 225 230 235 240

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
 245 250 255

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys
 260 265 270

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
 275 280 285

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser
 290 295 300

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met
 305 310 315 320

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr
 325 330 335

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile
 340 345 350

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp
 355 360 365

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
 370 375 380

Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser
 385 390 395 400

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu
 405 410 415

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
420 425 430

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
435 440 445

Ala Ile Asn Pro Lys Glu Phe Arg Arg Lys Gln Arg Arg Lys Arg Arg
450 455 460

Leu Gln Ala Ala Ala Ser
465 470

<210> 21
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Random basic amino acid sequence of C3Basic1
<400> 21

Lys Arg Arg Arg Arg Arg Pro Lys Lys Arg Arg Arg Ala Lys Arg Arg
1 5 10 15

<210> 22
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide used in the cloning of a random basic amino acid
sequence in C3Basic1

<400> 22
aagagaaggc gaagaagacc taagaagaga cgaagggcga agaggaga 48

<210> 23
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide used in the cloning of a random basic amino acid
sequence in C3Basic1

<400> 23
ttctcttccg cttcttctgg attcttctct gcttcccgcg tctcctct 48

<210> 24
 <211> 792
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Sequence of C3Basic1: includes ADP-ribosyl transferase C3
 (Clostridium botulinum) sequence and a sequence encoding a random
 basic amino acid sequence and a Histidine tag.

 <220>
 <221> CDS
 <222> (1)..(792)

<400> 24
 gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat 48
 Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn
 1 5 10 15

 caa aag gct tat tca aat act tac cag gag ttt act aat att gat caa 96
 Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
 20 25 30

 gca aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa 144
 Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys
 35 40 45

 tca gaa aaa gaa gct ata gta tca tat act aaa agc gct agt gaa ata 192
 Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
 50 55 60

 aat gga aag cta aga caa aat aag gga gtt atc aat gga ttt cct tca 240
 Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser
 65 70 75 80

 aat tta ata aaa caa gtt gaa ctt tta gat aaa tct ttt aat aaa atg 288
 Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met
 85 90 95

 aag acc cct gaa aat att atg tta ttt aga ggc gac gac cct gct tat 336
 Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr
 100 105 110

 tta gga aca gaa ttt caa aac act ctt ctt aat tca aat ggt aca att 384
 Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile
 115 120 125

 aat aaa acg gct ttt gaa aag gct aaa gct aag ttt tta aat aaa gat 432
 Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp
 130 135 140

 aga ctt gaa tat gga tat att agt act tca tta atg aat gtt tct caa 480
 Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
 145 150 155 160

ttt gca gga aga cca att att aca aaa ttt aaa gta gca aaa ggc tca	528
Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser	
165 170 175	

aag gca gga tat att gac cct att agt gct ttt cag gga caa ctt gaa	576
Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu	
180 185 190	

atg ttg ctt cct aga cat agt act tat cat ata gac gat atg aga ttg	624
Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu	
195 200 205	

tct tct gat ggt aaa caa ata ata att aca gca aca atg atg ggc aca	672
Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr	
210 215 220	

gct atc aat cct aaa gaa ttc aag aga agg cga aga aga cct aag aag	720
Ala Ile Asn Pro Lys Glu Phe Lys Arg Arg Arg Arg Arg Pro Lys Lys	
225 230 235 240	

aga cga agg gcg aag agg aga cac cac cac cac cac cac gtc gac tcg	768
Arg Arg Arg Ala Lys Arg Arg His His His His His Val Asp Ser	
245 250 255	

agc ggc cgc atc gtg act gac tga	792
Ser Gly Arg Ile Val Thr Asp	
260	

<210> 25
 <211> 263
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Sequence of C3Basic1: includes ADP-ribosyl transferase C3 (Clostridium botulinum) sequence and a sequence encoding a random basic amino acid sequence and a Histidine tag.

<400> 25

Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn
1 5 10 15

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
20 25 30

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys
35 40 45

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
50 55 60

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser
65 70 75 80

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met
85 90 95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr
100 105 110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile
115 120 125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp
130 135 140

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
145 150 155 160

Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser
165 170 175

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu
180 185 190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
195 200 205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
210 215 220

Ala Ile Asn Pro Lys Glu Phe Lys Arg Arg Arg Arg Arg Pro Lys Lys
225 230 235 240

Arg Arg Arg Ala Lys Arg Arg His His His His His His Val Asp Ser
245 250 255

Ser Gly Arg Ile Val Thr Asp
260

<210> 26
<211> 13
<212> PRT

<213> Artificial Sequence

<220>

<223> Random amino acid sequence of C3Basic2

<400> 26

Lys Arg Arg Arg Arg Lys Lys Arg Arg Gln Arg Arg Arg
1 5 10

<210> 27

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the cloning of a random basic amino acid sequence in C3Basic2

<400> 27

aagcgtcgac gtagaaagaa acgtagacag cgtagacgt 39

<210> 28

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the cloning of a random basic amino acid sequence in C3Basic2

<400> 28

ttcgcagctg catctttctt tgcattctgtc gcatctgca 39

<210> 29

<211> 783

<212> DNA

<213> Artificial Sequence

<220>

<223> Sequence of C3Basic2: includes sequences from ADP-ribosyl-transferase C3 (Clostridium botulinum) and a sequence encoding a random basic amino acid sequence and a histidine tag.

<220>

<221> CDS

<222> (1)..(783)

<400> 29

gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat 48
Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn
1 5 10 15

caa aag gct tat tca aat act tac cag gag ttt act aat att gat caa Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln 20 25 30	96
gca aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys 35 40 45	144
tca gaa aaa gaa gct ata gta tca tat act aaa agc gct agt gaa ata Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile 50 55 60	192
aat gga aag cta aga caa aat aag gga gtt atc aat gga ttt cct tca Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser 65 70 75 80	240
aat tta ata aaa caa gtt gaa ctt tta gat aaa tct ttt aat aaa atg Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met 85 90 95	288
aag acc cct gaa aat att atg tta ttt aga ggc gac gac cct gct tat Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr 100 105 110	336
tta gga aca gaa ttt caa aac act ctt ctt aat tca aat ggt aca att Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile 115 120 125	384
aat aaa acg gct ttt gaa aag gct aaa gct aag ttt tta aat aaa gat Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp 130 135 140	432
aga ctt gaa tat gga tat att agt act tca tta atg aat gtt tct caa Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln 145 150 155 160	480
ttt gca gga aga cca att att aca aaa ttt aaa gta gca aaa ggc tca Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser 165 170 175	528
aag gca gga tat att gac cct att agt gct ttt cag gga caa ctt gaa Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu 180 185 190	576
atg ttg ctt cct aga cat agt act tat cat ata gac gat atg aga ttg Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu 195 200 205	624
tct tct gat ggt aaa caa ata ata att aca gca aca atg atg ggc aca Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr 210 215 220	672
gct atc aat cct aaa gaa ttc aag cgt cga cgt aga aag aaa cgt aga Ala Ile Asn Pro Lys Glu Phe Lys Arg Arg Arg Arg Lys Lys Arg Arg 225 230 235 240	720

cag cgt aga cgt cac cac cac cac cac cgtc gac tcg agc ggc cgc 768
Gln Arg Arg Arg His His His His His Val Asp Ser Ser Gly Arg
245 250 255

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<210> 30
<211> 260
<212> PRT
<213> Artificial Sequence
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<400> 30

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
 145 150 155 160

Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser
 165 170 175

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu
 180 185 190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
 195 200 205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
 210 215 220

Ala Ile Asn Pro Lys Glu Phe Lys Arg Arg Arg Arg Lys Lys Arg Arg
 225 230 235 240

Gln Arg Arg Arg His His His His His His Val Asp Ser Ser Gly Arg
 245 250 255

Ile Val Thr Asp
 260

<210> 31
 <211> 9
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Reverse HIV-1 Tat amino acid sequence of C3Basic3

<400> 31

Arg Arg Lys Gln Arg Arg Lys Arg Arg
 1 5

<210> 32
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Oligonucleotide used in the cloning of a reverse HIV Tat
 sequence in C3Basic3

<400> 32
 agaaggaaac aaagaagaaa aagaaga

<210> 33
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Oligonucleotide used in the cloning of a reverse HIV Tat
 sequence in C3Basic3

<400> 33
 tcttcctttg tttcttcttt ttctttct 27

<210> 34
 <211> 771
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Sequence of C3Basic3: includes sequences from ADP-ribosyl
 tranferase C3 (C. botulinum) and a sequence encoding a reverse
 HIV-1 Tat amino acid sequence and a Histidine tag

<220>
 <221> CDS
 <222> (1)..(771)

<400> 34
 gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat 48
 Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn
 1 5 10 15

caa aag gct tat tca aat act tac cag gag ttt act aat att gat caa 96
 Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
 20 25 30

gca aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa 144
 Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys
 35 40 45

tca gaa aaa gaa gct ata gta tca tat act aaa agc gct agt gaa ata 192
 Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
 50 55 60

aat gga aag cta aga caa aat aag gga gtt atc aat gga ttt cct tca 240
 Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser
 65 70 75 80

aat tta ata aaa caa gtt gaa ctt tta gat aaa tct ttt aat aaa atg 288
 Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met
 85 90 95

aag acc cct gaa aat att atg tta ttt aga ggc gac gac cct gct tat 336
 Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr

Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
 20 25 30

Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys
 35 40 45

Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
 50 55 60

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser
 65 70 75 80

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met
 85 90 95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr
 100 105 110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile
 115 120 125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp
 130 135 140

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
 145 150 155 160

Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser
 165 170 175

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Gln Leu Glu
 180 185 190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
 195 200 205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
 210 215 220

Ala Ile Asn Pro Lys Glu Phe Arg Arg Lys Gln Arg Arg Lys Arg Arg
 225 230 235 240

His His His His His His Val Asp Ser Ser Gly Arg Ile Val Thr Asp

245

250

255

<210> 36
 <211> 887
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Sequence of C3APLT: includes sequences from ADP-ribosyl transferase C3 (Clostridium botulinum) and a sequence encoding a proline rich region.

<220>
 <221> CDS
 <222> (1)..(747)

<400> 36
 gga tcc tct aga gtc gac ctg cag gca tgc aat gct tat tcc att aat 48
 Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn
 1 5 10 15
 caa aag gct tat tca aat act tac cag gag ttt act aat att gat caa 96
 Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln
 20 25 30
 gca aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa 144
 Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys
 35 40 45
 tca gaa aaa gaa gct ata gta tca tat act aaa agc gct agt gaa ata 192
 Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile
 50 55 60
 aat gga aag cta aga caa aat aag gga gtt atc aat gga ttt cct tca 240
 Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser
 65 70 75 80
 aat tta ata aaa caa gtt gaa ctt tta gat aaa tct ttt aat aaa atg 288
 Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met
 85 90 95
 aag acc cct gaa aat att atg tta ttt aga ggc gac gac cct gct tat 336
 Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr
 100 105 110
 tta gga aca gaa ttt caa aac act ctt ctt aat tca aat ggt aca att 384
 Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile
 115 120 125
 aat aaa acg gct ttt gaa aag gct aaa gct aag ttt tta aat aaa gat 432
 Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp
 130 135 140
 aga ctt gaa tat gga tat att agt act tca tta atg aat gtt tct caa 480
 Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln

145	150	155	160	
ttt gca gga aga cca att att aca aaa ttt aaa gta gca aaa ggc tca				528
Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser				
	165	170	175	
aag gca gga tat att gac cct att agt gct ttt gca gga caa ctt gaa				576
Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Ala Gly Gln Leu Glu				
	180	185	190	
atg ttg ctt cct aga cat agt act tat cat ata gac gat atg aga ttg				624
Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu				
	195	200	205	
tct tct gat ggt aaa caa ata ata att aca gca aca atg atg ggc aca				672
Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr				
	210	215	220	
gct atc aat cct aaa gaa ttc gtg atg aat ccc gca aac gcg caa ggc				720
Ala Ile Asn Pro Lys Glu Phe Val Met Asn Pro Ala Asn Ala Gln Gly				
	225	230	235	240
aga cat aca ccc ggt acc aga ctc tag agctagagaa ggagtttcac				767
Arg His Thr Pro Gly Thr Arg Leu				
	245			
ttcaatcgct acttgacccg tcggcgaagg atcgagatcg cccacgccct gtgcctcacg				827
gagcgccaga taaagatttg gttccagaat cggcgcatga agtggaagaa ggagaactga				887
<210>	37			
<211>	248			
<212>	PRT			
<213>	Artificial Sequence			
<220>				
<223>	Sequence of C3APLT: includes sequences from ADP-ribosyl transferase C3 (Clostridium botulinum) and a sequence encoding a proline rich region.			
<400>	37			
Gly Ser Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn				
1	5	10	15	
Gln Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln				
	20	25	30	
Ala Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys				
	35	40	45	
Ser Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile				
	50	55	60	

Asn Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser
65 70 75 80

Asn Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met
85 90 95

Lys Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr
100 105 110

Leu Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile
115 120 125

Asn Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp
130 135 140

Arg Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln
145 150 155 160

Phe Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser
165 170 175

Lys Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Ala Gly Gln Leu Glu
180 185 190

Met Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu
195 200 205

Ser Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr
210 215 220

Ala Ile Asn Pro Lys Glu Phe Val Met Asn Pro Ala Asn Ala Gln Gly
225 230 235 240

Arg His Thr Pro Gly Thr Arg Leu
245

<210> 38

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide used in the cloning of C3APLT in pET vector

<400> 38
ggatctgggt ccgcgtcata tgtctagagt cgacctg 37

<210> 39
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide used in the cloning of C3APLT in pET vector

<400> 39
cgcggatcca ttagttctcc ttcttccact tc 32

<210> 40
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide used in the sequencing of C3APLT

<400> 40
aaattaatac gactcactat aggg 24

<210> 41
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide used in the sequencing of C3APLT

<400> 41
gctagttatt gctcagcgg 19

<210> 42
<211> 888
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence of C3APLT in a pET vector: includes sequences from
ADP-ribosyl transferase C3 (Clostridium botulinum) and a sequence
encoding a proline rich region.

<220>
<221> CDS
<222> (1)..(744)

<400> 42	
atg tct aga gtc gca ctg cag gca tgc aat gct tat tcc att aat caa	48
Met Ser Arg Val Ala Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn Gln	
1 5 10 15	
aag gct tat tca aat act tac cag gag ttt act aat att gat caa gca	96
Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln Ala	
20 25 30	
aaa gct tgg ggt aat gct cag tat aaa aag tat gga cta agc aaa tca	144
Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys Ser	
35 40 45	
gaa aaa gaa gct ata gta tca tat act aaa agc gct agt gaa ata aat	192
Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile Asn	
50 55 60	
gga aag cta aga caa aat aag gga gtt atc aat gga ttt cct tca aat	240
Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser Asn	
65 70 75 80	
tta ata aaa caa gtt gaa ctt tta gat aaa tct ttt aat aaa atg aag	288
Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met Lys	
85 90 95	
acc cct gaa aat att atg tta ttt aga ggc gac gac cct gct tat tta	336
Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr Leu	
100 105 110	
gga aca gaa ttt caa aac act ctt ctt aat tca aat ggt aca att aat	384
Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile Asn	
115 120 125	
aaa acg gct ttt gaa aag gct aaa gct aag ttt tta aat aaa gat aga	432
Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp Arg	
130 135 140	
ctt gaa tat gga tat att agt act tca tta atg aat gtt tct caa ttt	480
Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln Phe	
145 150 155 160	
gca gga aga cca att att aca aaa ttt aaa gta gca aaa ggc tca aag	528
Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser Lys	
165 170 175	
gca gga tat att gac cct att agt gct ttt gca gga caa ctt gaa atg	576
Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Ala Gly Gln Leu Glu Met	
180 185 190	
ttg ctt cct aga cat agt act tat cat ata gac gat atg aga ttg tct	624
Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu Ser	
195 200 205	
tct gat ggt aaa caa ata ata att aca gca aca atg atg ggc aca gct	672

Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr Ala
 210 215 220

atc aat cct aaa gaa ttc gtg atg aat ccc gca aac gcg caa ggc aga 720
 Ile Asn Pro Lys Glu Phe Val Met Asn Pro Ala Asn Ala Gln Gly Arg
 225 230 235 240

cat aca ccc ggt acc aga ctc tag agctagagaa ggagtttcac ttcaatcgct 774
 His Thr Pro Gly Thr Arg Leu
 245

acttgacccg tcggcgaagg atcgagatcg cccacgccct gtgcctcacg gagcgccaga 834

taaagatttg gttccagaat cggcgcgatga agtgaagaa ggaggactaa ctga 888

<210> 43
 <211> 247
 <212> PRT

<213> Artificial Sequence

<220>
 <223> Sequence of C3APLT in a pET vector: includes sequences from
 ADP-ribosyl transferase C3 (Clostridium botulinum) and a sequence
 encoding a proline rich region.

<400> 43

Met Ser Arg Val Ala Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn Gln
 1 5 10 15

Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln Ala
 20 25 30

Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys Ser
 35 40 45

Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile Asn
 50 55 60

Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser Asn
 65 70 75 80

Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met Lys
 85 90 95

Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr Leu
 100 105 110

Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile Asn
 115 120 125

Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp Arg
 130 135 140

Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln Phe
 145 150 155 160

Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser Lys
 165 170 175

Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Ala Gly Gln Leu Glu Met
 180 185 190

Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu Ser
 195 200 205

Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr Ala
 210 215 220

Ile Asn Pro Lys Glu Phe Val Met Asn Pro Ala Asn Ala Gln Gly Arg
 225 230 235 240

His Thr Pro Gly Thr Arg Leu
 245

<210> 44

<211> 64

<212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequence of Antennapedia from C3APL

<400> 44

Val Met Glu Ser Arg Lys Arg Ala Arg Gln Thr Tyr Thr Arg Tyr Gln
 1 5 10 15

Thr Leu Glu Leu Glu Lys Glu Phe His Phe Asn Arg Tyr Leu Thr Arg
 20 25 30

Arg Arg Arg Ile Glu Ile Ala His Ala Leu Cys Leu Thr Glu Arg Gln
 35 40 45

Ile Lys Ile Trp Phe Gln Asn Arg Arg Met Lys Trp Lys Lys Glu Asn
50 55 60

<210> 45
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of Antennapedia from C3APS
<400> 45

Arg Gln Ile Lys Ile Trp Phe Gln Asn Arg Arg Met Lys Trp Lys Lys
1 5 10 15

Val Asp Ser

<210> 46
<211> 60
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of HIV-1 Tat from C3-TL
<400> 46

Lys His Pro Gly Ser Gln Pro Lys Thr Ala Cys Thr Asn Cys Tyr Cys
1 5 10 15

Lys Lys Cys Cys Phe His Cys Gln Val Cys Phe Ile Thr Lys Ala Leu
20 25 30

Gly Ile Ser Tyr Gly Arg Lys Arg Arg Gln Arg Arg Arg Ala His Gln
35 40 45

Asn Ser Gln Thr His Gln Ala Ser Leu Ser Lys Gln
50 55 60

<210> 47
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence of HIV-1 Tat from C3-TS

<400> 47

Tyr Gly Ala Lys Lys Arg Arg Gln Arg Arg Arg Val Asp Ser Ser Gly
1 5 10 15

Pro His Arg Asp
20

<210> 48

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequence of the proline rich region of C3APLT

<400> 48

Val Met Asn Pro Ala Asn Ala Gln Gly Arg His Thr Pro Gly Thr Arg
1 5 10 15

Leu

<210> 49

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<223> Amino acid sequence fused to C3 protein to created C3 Tat-short

<400> 49

Tyr Gly Arg Lys Arg Arg Gln Arg Arg Arg
1 5 10

<210> 50

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Reverse sequence of Tat amino acids fused to C3 protein to
created C3Basic3

<400> 50

Arg Arg Gln Arg Arg Lys Lys Arg
1 5

<210> 51
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> transport peptide rich in Proline

<400> 51

Ala Ala Val Leu Leu Pro Val Leu Leu Ala Ala Pro
1 5 10

<210> 52
<211> 24
<212> PRT
<213> Artificial Sequence

<220>
<223> Sperm fertiline alpha peptide

<400> 52

His Pro Ile Gln Ile Ala Ala Phe Leu Ala Arg Ile Pro Pro Ile Ser
1 5 10 15

Ser Ile Gly Thr Cys Ile Leu Lys
20

<210> 53
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino acid sequence from the C3Basic3

<400> 53

Arg Arg Lys Gln Arg Arg Lys Arg Arg
1 5

<210> 54
<211> 744
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence of C3-07Q189A

<400> 54
atgtctagag tcgacctgca ggcatgcaat gcttattcca ttaatcaaaa ggcttattca 60


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aatacttacc aggagtttac taatattgat caagcaaaaag cttggggtaa tgctcagtat 120
aaaaagtatg gactaagcaa atcagaaaaa gaagctatag tatcatatac taaaagcgct 180
agtgaaataa atggaaagct aagacaaaat aagggagtta tcaatggatt tccttcaa 240
ttaataaaaac aagttgaact tttagataaa tcttttaata aaatgaagac ccctgaaaat 300
attatgttat ttagaggcga cgaccctgct tatttaggaa cagaatttca aaacactctt 360
cttaattcaa atggtacaat taataaaaacg gcttttgaaa aggctaaagc taagttttta 420
aataaagata gacttgaata tggatatatt agtacttcat taatgaatgt ttctcaattt 480
gcaggaagac caattattac aaaatttaaa gtagcaaaaag gctcaaaggc aggatatatt 540
gacctatta gtgcttttgc aggagcactt gaaatgttgc ttcctagaca tagtacttat 600
catatagacg atatgagatt gtcttctgat ggtaaacaaa taataattac agcaacaatg 660
atgggcacag ctatcaatcc taaagaattc gtgatgaatc ccgcaaacgc gcaaggcaga 720
catacacccg gtaccagact ctac 744

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<210> 55
<211> 247
<212> PRT
<213> Artificial Sequence

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<220>
<223> Amino acid sequence of C3-07Q189A

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<400> 55
Met Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn Gln
1 5 10 15
Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln Ala
20 25 30
Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys Ser
35 40 45
Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile Asn
50 55 60
Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser Asn
65 70 75 80
Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met Lys
85 90 95
Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr Leu
100 105 110
Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile Asn
115 120 125
Lys Thr Ala Phe Glu Lys Ala Lys Phe Leu Asn Lys Asp Arg
130 135 140
Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln Phe
145 150 155 160
Ala Gly Arg Pro Ile Ile Thr Gln Phe Lys Val Ala Lys Gly Ser Lys
165 170 175
Ala Gly Tyr Ile Asp Pro Ile Ser Ala Phe Gln Gly Ala Leu Glu Met
180 185 190
Leu Leu Pro Arg His Ser Thr Tyr His Ile Asp Asp Met Arg Leu Ser
195 200 205
Ser Asp Gly Lys Gln Ile Ile Ile Thr Ala Thr Met Met Gly Thr Ala
210 215 220
Ile Asn Pro Lys Glu Phe Val Met Asn Pro Ala Asn Ala Gln Gly Arg
225 230 235 240
His Thr Pro Gly Thr Arg Leu
245

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<210> 56
 <211> 783
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Sequence of BA-05

<400> 56
 ggatcctcta gagtcgacct gcaggcatgc aatgcttatt ccattaatca aaaggcttat 60
 tcaaatactt accaggagtt tactaatatt gatcaagcaa aagcttgagg taatgctcag 120
 tataaaaagt atggactaag caaatcagaa aaagaagcta tagtatcata tactaaaagc 180
 gctagtgaat taaatggaaa gctaagacaa aataaggagg ttatcaatgg atttccttca 240
 aatttaataa aacaagttga acttttagat aaatctttta ataaaatgaa gacccctgaa 300
 aatattatgt tattttagagg cgacgacctt gcttattttag gaacagaatt tcaaaacact 360
 cttcttaatt caaatggtac aattaataaa acggctttttg aaaaggctaa agctaagttt 420
 ttaaataaag atagacttga atattgatat attagtactt cattaatgaa tgtttctcaa 480
 tttgcaggaa gaccaattat tacaaaattt aaagtagcaa aaggctcaaa ggcaggatat 540
 attgacccta ttagtgcttt tgcaggacaa cttgaaatgt tgcttcctag acatagtact 600
 tatcatatag acgatatgag attgtcttct gatggtaaac aaataataat tacagcaaca 660
 atgatgggca cagctatcaa tcctaaagaa ttcgatgatga atcccgcaaa cgcgcaaggc 720
 agacatacac ccggtaccag actctagagc tagagaagga gtttcacttc aatcgctact 780
 tga 783

<210> 57
 <211> 247
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Amino acid sequence of pET9a-BA-07

<400> 57
 Met Ser Arg Val Asp Leu Gln Ala Cys Asn Ala Tyr Ser Ile Asn Gln
 1 5 10 15
 Lys Ala Tyr Ser Asn Thr Tyr Gln Glu Phe Thr Asn Ile Asp Gln Ala
 20 25 30
 Lys Ala Trp Gly Asn Ala Gln Tyr Lys Lys Tyr Gly Leu Ser Lys Ser
 35 40 45
 Glu Lys Glu Ala Ile Val Ser Tyr Thr Lys Ser Ala Ser Glu Ile Asn
 50 55 60
 Gly Lys Leu Arg Gln Asn Lys Gly Val Ile Asn Gly Phe Pro Ser Asn
 65 70 75 80
 Leu Ile Lys Gln Val Glu Leu Leu Asp Lys Ser Phe Asn Lys Met Lys
 85 90 95
 Thr Pro Glu Asn Ile Met Leu Phe Arg Gly Asp Asp Pro Ala Tyr Leu
 100 105 110
 Gly Thr Glu Phe Gln Asn Thr Leu Leu Asn Ser Asn Gly Thr Ile Asn
 115 120 125
 Lys Thr Ala Phe Glu Lys Ala Lys Ala Lys Phe Leu Asn Lys Asp Arg
 130 135 140
 Leu Glu Tyr Gly Tyr Ile Ser Thr Ser Leu Met Asn Val Ser Gln Phe
 145 150 155 160
 Ala Gly Arg Pro Ile Ile Thr Lys Phe Lys Val Ala Lys Gly Ser Lys
 165 170 175

Ala	Gly	Tyr	Ile	Asp	Pro	Ile	Ser	Ala	Phe	Ala	Gly	Gln	Leu	Glu	Met
			180					185					190		
Leu	Leu	Pro	Arg	His	Ser	Thr	Tyr	His	Ile	Asp	Asp	Met	Arg	Leu	Ser
		195					200					205			
Ser	Asp	Gly	Lys	Gln	Ile	Ile	Ile	Thr	Ala	Thr	Met	Met	Gly	Thr	Ala
	210				215					220					
Ile	Asn	Pro	Lys	Glu	Phe	Val	Met	Asn	Pro	Ala	Asn	Ala	Gln	Gly	Arg
225				230					235					240	
His	Thr	Pro	Gly	Thr	Arg	Leu									
			245												

<210> 58
 <211> 35
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 58
 cctaaagaat tcgtgatgaa tcccgcaaac gcgca

35

<210> 59
 <211> 35
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 59
 tgcgcgtttg cgggattcat cacgaattct ttagg

35